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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,816	02/06/2004	Hari Om	16820P277	8266

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EXAMINER	
CHO, JAMES HYONCHOL	
ART UNIT	**PAPER NUMBER**
2819	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/773,816	OM ET AL.	
	Examiner	Art Unit	
	James Cho	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-11,17-19 and 24-26* is/are rejected.

7)☒ Claim(s) *4-7,12-16 and 20-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8-11, 17-19 and 24-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Rosefield et al. (US Pat No. 6,541,996).

Regarding clams 1 and 17, Figs. 2 and 4 of Rosefield et al. teaches an apparatus and a method to control an impedance of an output driver comprising: a first pull-up

structure (204 in Fig. 2); a pull-down structure (206 in Fig .2); and a comparator (209 in Fig. 2) coupled to the first pull-up structure and the pull-down structure, to calibrate the first pull-up structure and the pull-down structure against a reference impedance (114 in Fig. 2).

Regarding claim 2, Figs. 2 and 4 of Rosefield et al. teaches the apparatus of claim 1, further comprising a second pull-up structure (208 in Fig. 4) coupled to the comparator (209 in Fig. 4).

Regarding claim 3, Figs. 2 and 4 of Rosefield et al. teaches the apparatus of claim 2 wherein the comparator is operable to calibrate the second pull-up structure against the reference impedance (col. 7, lines 9-21).

Regarding claim 8, Figs. 2 and 4 of Rosefield et al. teaches the apparatus of claim 2 where the first and second pull-up structures are substantially identical (both 204 and 206 has 4 transistors).

Regarding claim 9-11, Figs. 2 and 4 of Rosefield et al. teaches the apparatus of claim 1 where the reference impedance resides with the comparator on an integrated circuit die, on a package substrate, or on a printed circuit board (col. 3, lines 30-34).

Regarding claim 18, Figs. 2 and 4 of Rosefield et al. teaches the method of claim 17 wherein calibrating the pull-down structure comprises enabling the first pull-up structure and a second pull-up structure (206 are calibrated after 204 and 208 are completed, i.e. enabled; col. 7, lines 9-12).

Regarding claim 19, Figs. 2 and 4 of Rosefield et al. teaches the method of claim 17 further comprises calibrating the second pull-up structure with the comparator against the reference impedance (col. 7, lines 9-12).

Regarding claim 24, Figs. 1- 2 and 4 of Rosefield et al. teaches an apparatus comprising means for calibrating a first pull-up structure (204) and a pull-down structure (206) against a reference impedance (114); and means for adjusting an impedance of each of a plurality of output drivers in response to the calibrated first pull-up structure and the calibrated pull-down structure (106 in Fig. 1, the output impedance level for the output driver pull up and pull down circuits; 224 and 226 in Fig. 2, col. 3, lines 15-18; col. 4, lines 5-10).

Regarding claim 25, Figs. 1-2 and 4 of Rosefield et al. teaches the apparatus of claim 24 wherein the means for calibrating the first pull-up structure and the pull-down structure calibrates a second pull-up structure (208 are calibrated using the comparator 209, col. 7, lines 9-12) against the reference impedance.

Regarding claim 26, Figs. 1-2 and 4 of Rosefield et al. teaches the apparatus of claim 25, further comprising means for providing a plurality of input values (output values at node 224, 226 in Fig. 2) to each of the plurality of output driver (pull up and pull down circuits of the output driver) wherein the plurality of input values correspond to an impedance of the first pull-up structure and an impedance of the pull-down structure (col. 3, line 50 - col. 4, line 14).

Allowable Subject Matter

Claims 4-7, 12-16 and 20-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: one of ordinary skill in the art would not have been motivated to modify the teaching of Rosefield et al. to further includes, among other things, the specific of a first, a second, and third registers coupled to the first and the second pull-up structures and the pull-down structure respectively to store a plurality of input values to a plurality of output drivers as required by claim 4, the first and the second pull-up structures being shorted together as required by claims 7 and 23.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Volk et al. (US PAT No. 6,166,563) discloses a method and apparatus for dual mode output buffer impedance compensation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Cho whose telephone number is 571-272-1802. The examiner can normally be reached on M-F 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James H. Cho
Primary Examiner
Art Unit 2819

7-22-2005